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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,665	08/31/2001	Shinji Tai	213446US0	7812

22850 7590 07/14/2003

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT PAPER NUMBER

1714

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/942,665

Applicant(s)

TAI ET AL.

Examiner

Katarzyna Wyrozewski Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claim 7, 21 and 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 27 the applicant stated that the difference between the refractive index of EVOH and thermoplastic resin is less than 0.01. This claim further depends on claim 16, which recites two EVOH resins. It is therefore not clear if the difference in refractive index is between the mixture of the two EVOH polymers with thermoplastic or if not a mixture then which specific EVOH is used to make the comparison of refractive indexes

Claims 7 and 21 recite limitation of molecular weight. It is not clear as to what type of molecular weight the applicants are claiming. Examples are weight average molecular weight, number average molecular weight or other.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 3, 14, 15-17, 27-30, 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Hata (US 5,972,447)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The prior art of Hata discloses composition comprising two EVOH polymers and thermoplastic polymer. Examples 1-6, 1-7 and 1-9 discloses EVOH1 having ethylene content of 38 mol% and saponification degree of 99.7% while EVOH2 has ethylene content of 51 mole% and saponification degree of 96 %.

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Thermoplastic polymer is EMAA (ethylene methacrylic acid) or EAA (ethylene acrylic acid).

The article provided is multilayered article having good barrier property, coextruded or co-injection molded with other polymers such as polypropylene and polystyrene.

In the light of the above disclosure the prior art of Hata anticipates the requirements of claims rejected above.

5. Claims 1, 15, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroshi (EP 814,126).

The prior art of Hiroshi discloses composition comprising EVOH and thermoplastic polymer.

According to page 3 lines 35-44, EVOH has ethylene content of 25-60 mole% and saponification degree greater than 90 mole %. Resulting EVOH has good permeability barrier properties.

According to page 4 of the prior art of Hiroshi (lines 8-26) thermoplastic polymer contains aromatic vinyl unit and isobutylene, which obviously contains unsaturation. Preferred vinyl aromatic block is made of styrene or its derivatives. Styrene block has number average molecular weight of 2,500-400,000, while isobutylene block has number average molecular weight of 20,000-400,000.

The composition of Hiroshi is utilized to make especially laminates (page 8-9, lines 58 and 1 respectively) to be co-extruded or co-injected with other thermoplastic polymers.

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In the light of the above disclosure, the prior art of Hiroshi anticipates requirements of claims rejected above.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-16, 19-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi (EP 814,126) in view of evidence given in Bertin (US 6,294,609).

The discussion of the disclosure of the prior art of Hiroshi from paragraph 5 of this office action is incorporated here by reference.

In addition to the discussion in paragraph 5 the prior art of Hiroshi renders following limitations obvious. Comparative example 1-3 on page 11 discloses EVOH polymer blended with styrene isoprene block copolymers. The resulting composition has permeability of 3 cc (cc = 1 ml).

Comparative example 4-9 (page 12) further discloses making of a layered article with polyester (PET).

Although the prior art of Hirashi does not teach the mixture of two EVOH polymers, utilizing two EVOH polymers would have been obvious to one having ordinary skill in the art. Selection of a known material based on its suitability for its intended use supports *prima facie* obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.* 325 U.S. 327, 65 USPQ 297 (1945).

Utilizing EVOH with two different saponification degrees as well as two different ethylene contents alters the permeability barrier property of the composition. Such allegation is taught by the prior art of Bertin (col. 2) and is incorporated here by reference.

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In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art to utilize two EVOH polymers in order to optimize the barrier permeability properties of the composition and thereby obtain the claimed invention.

10. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi (EP 814,126) as applied to claims 1-16, 19-37 above, and further in view of Speer (EP 854,166).

The discussion of the disclosure of the prior art of Hiroshi from paragraph 9 of this office action is incorporated here by reference.

The difference between the present invention and the prior art of Hiroshi is presence of the oxygen scavenging transition metal compounds.

With respect to the above difference, the prior art of Steer discloses composition comprising thermoplastic polymers with metal catalyst, wherein the metal catalysts acts as a oxygen scavenger.

The polymers utilized in the prior art of Speer include diene polymers such as polybutadiene, which is copolymer with monomers such as ethylene. The diene copolymer is incorporated into the polyethylene/vinyl acetate copolymer having acetate content of 9%.

The metal compounds utilized to scavenge the oxygen include cobalt (example 1, page 7). Specification further teaches use of other transition metals, such as iron, manganese, nickel or copper (Page 5, lines 9-16).

Metal complexes such as Fe, Co, Mn, Cu are already known as oxygen scavenging and are utilized in order to increase the permeability barrier property of the polymer compositions such as those based on dienes.



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In the light of the above disclosure, it would have been obvious to one having ordinary skill in the to utilize the transition metal catalyst in the composition having gas barrier property and thereby obtain the claimed invention. Utilizing oxygen scavengers will further increase the gas barrier property of the polymer composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*Katarzyna Wyrozebski Lee*  
KIWL

July 9, 2003